

WHAT IS CLAIMED IS:

1. A device for feedback compensation in hearing devices, comprising:
 - a signal input device configured to acquire an input signal that is influenced by a feedback;
 - a feedback reduction device for adjustable reduction, compensation, or damping of the feedback, and
 - a signal output device configured to output an output signal with a reduced feedback portion; and
 - an estimation unit that is connected between the signal input device and the feedback reduction device, and with which an estimated value of a system distance that is defined by a distance of loop gain of the feedback system to its predetermined stability limit can be determined from the input signal, such that parameters of the feedback reduction device are controllable using the estimated value.
2. The device according to claim 1, wherein the estimation device is configured to detect a first signal portion and a second signal portion from the input signal, to generate an estimated signal for the second signal portion utilizing a model from the first signal portion, and to determine an estimated value from a difference of the estimated signal and the second signal portion.
3. The device according to claim 2, wherein the first signal portion corresponds to a high-frequency portion of the input signal, and the second signal portion corresponds to a low-frequency portion of the input signal.
4. The device according to claim 2, wherein the estimation device comprises a feature extractor configured to extract features from the first and second signal portions for further processing.

5. The device according to claim 1, wherein the feedback reduction device comprises a feedback compensator.

6. The device according to claim 1, wherein the feedback reduction device comprises an amplification/compression control.

7. The device according to claim 1, wherein the feedback reduction device comprises at least one oscillation detector and at least one narrow-band filter device to suppress oscillations based on the estimated value.

8. A method for feedback compensation in a hearing device, comprising:
acquiring an input signal that is influenced by a feedback signal;
adjustably reducing, compensating, or damping the feedback signal; and
outputting an output signal with a reduced feedback portion;
estimating a system distance that is defined by a distance of loop gain of the feedback system to its predetermined stability limit and producing an estimated value; and
controlling the reduction, compensation, or damping of the feedback signal using the estimated value.

9. The method according to claim 8, wherein the estimating of a system distance comprises:

detecting a first signal portion and a second signal portion of the input signal;
forming a predictive signal for the second signal portion from the first signal portion utilizing a model; and

determining the estimated value from a difference of the predictive signal and second signal portion.

10. The method according to claim 9, wherein the first signal portion corresponds to a high-frequency portion of the input signal, and the second signal portion corresponds to a low-frequency portion of the input signal.

11. The method according to claim 9, further comprising extracting, after the detection of the first and second signal portion, signal features for further processing from the signal portions.

12. The method according to claim 8, wherein the reduction or damping of the feedback signal ensues via adaptive feedback compensation.

13. The method according to claim 8, wherein the reduction or damping of the feedback signal ensues via controlling at least one of an amplification and compression.

14. The method according to claim 8, wherein the reduction or damping of the feedback signal ensues via detecting an oscillation and narrow-band filtering-out of this oscillation.